AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1-3 (Cancelled).

4. (Currently Amended): A method for producing a rare earth-iron-boron based magnet, the method comprising:

supporting a Nd-Fe-B based ~~sintered body~~ sintered original magnet in a reduced pressure vessel containing several tens ppm or less of oxygen and water vapor, the ~~Nd-Fe-B based sintered~~ original magnet having grain boundary layer comprising Nd rich phase surrounding a main crystal ~~of particle diameter of 6-10 μm~~ comprising $Nd_2Fe_{14}B$, the ~~Nd-Fe-B based sintered body~~ original magnet having a shape of plate or of hollow cylinder with a thickness of 10 mm or less;

~~physically depositing~~ supplying a vapor or fine particles of element M (element M is at least one rare earth element selected from Pr, Dy, Tb, and Ho) or an alloy containing the element M onto the entire surface or a portion of the surface of the ~~Nd-Fe-B based sintered body to form a film of the element M; and then~~ original magnet; and

heating the original magnet at 500-1000°C so as to diffuse and penetrate the element M into the original magnet from the surface thereof so as to form a crystal grain boundary layer enriched in the element M by reaction with the Nd rich phase disposed between main crystals,

wherein the rare earth-iron-boron based magnet satisfies following ~~(A) and (D):~~ (A) to (C):

(A) $Hcj \geq 1 + 0.2 \times M$ and $0.05 \leq M \leq 10$, where Hcj is coercive force in MA/m, and M is concentration of the element M in mass % in a whole magnet,

(B) Br ≥ 1.68 – 0.17 x Hcj, where Br is the residual magnetic flux density (unit: T), and

(C) the element M ~~reacting~~ reacted with the Nd rich phase distributes in a range of 10-1000μm from exposed surfaces~~, and (D) wherein concentration of the element M increases as the crystal grain boundary layer approaches to surface of the magnet, and the concentration of element M is 50 mass % or more at 10 μm from the surface~~.

5. (Cancelled).

6. (Currently Amended): A method for producing a rare earth-iron-boron based magnet according to claim 4, the method comprising:

supporting a Nd-Fe-B based ~~sintered body~~ sintered original magnet in a reduced pressure vessel containing several tens ppm or less of oxygen and water vapor, the ~~Nd-Fe-B based sintered body~~ original magnet having grain boundary layer comprising Nd rich phase surrounding a main crystal ~~of particle diameter of 6-10 μm~~ comprising $Nd_2Fe_{14}B$, the ~~Nd-Fe-B based sintered body~~ original magnet having a shape of plate or of hollow cylinder with a thickness of 10 mm or less; and

~~depositing~~ supplying, by sputtering, fine particles of element M (element M is at least one rare earth element selected from Pr, Dy, Tb, and Ho) or an alloy containing the element M onto the entire surface or a portion of the surface of the Nd-Fe-B based sintered body to form a film of the element M,

wherein the magnet is heated at 500-1000°C in the ~~depositing~~ supplying step so as to diffuse and penetrate the element M into the magnet from the surface thereof so as to form a crystal grain

boundary layer enriched in the element M by reaction with the Nd rich phase, the magnet having the rare earth-rich grain boundary layer disposed between main crystals,

wherein the rare earth-iron-boron based magnet satisfies following ~~(A) and (D):~~ (A) to (C):

(A) $Hcj \geq 1+ 0.2 \times M$ and $0.05 \leq M \leq 10$, where Hcj is coercive force in MA/m, and M is concentration of the element M in mass % in a whole magnet,

(B) $Br \geq 1.68 - 0.17 \times Hcj$, where Br is the residual magnetic flux density (unit: T), and

(C) the element M ~~reacting~~ reacted with the Nd rich phase distributes in a range of 10-1000μm from exposed surfaces, and ~~(D) wherein concentration of the element M increases as the crystal grain boundary layer approaches to surface of the magnet, and the concentration of element M is 50 mass % or more at 10 μm from the surface~~.